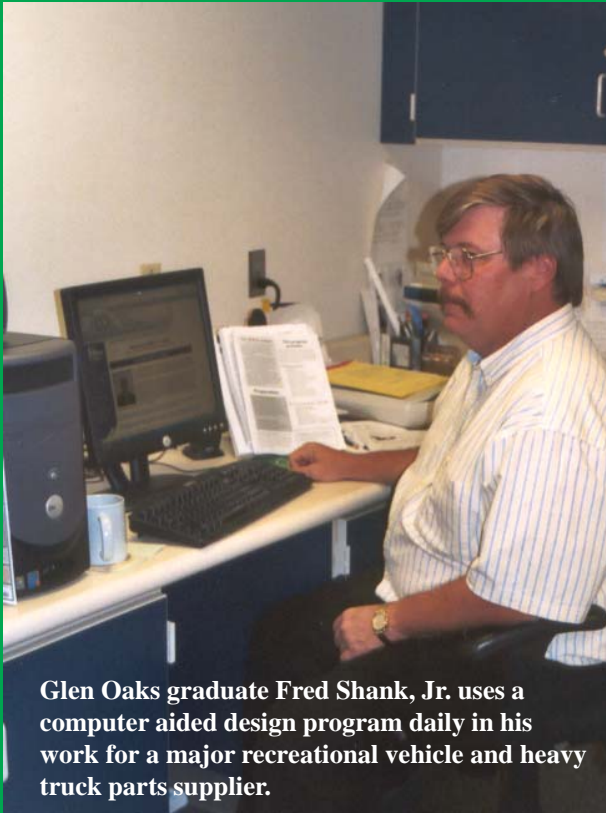


DRAFTING AND DESIGN

Drafting and Design Certificate Associate of Applied Science in Technology Degree



Glen Oaks graduate Fred Shank, Jr. uses a computer aided design program daily in his work for a major recreational vehicle and heavy truck parts supplier.

GLEN OAKS
COMMUNITY COLLEGE
62249 Shimmel Rd.
Centreville, MI 49032
467-9945
1-888-994-7818
www.glenoaks.edu



The Drafting & Design Certificate is designed so that, upon completion, students will be prepared for entry level mechanical detailing, layout work, assembly drawings and three-dimensional drawings. Students will also be prepared for CAD design, for instance, in the modular home and trailer industry. Students will be required to accurately detail various geometric shapes. Emphasis will be placed on American National Standards (1994) to include geometric dimensioning and tolerancing. Proper dimensioning techniques, view placement, assembly drawings and selecting proper views will be studied. Students also draw in three dimension using solid modeling and Inventor, all using the latest AutoCad software.

35 Credits

The above Certificate applies toward:

The Associate of Applied Science in Technology Degree for those students moving directly into the workplace upon graduation. This Associate Degree is flexible and provides a wide range of classroom experiences in Communications (10 hours), Computer Science (4 hours), Social Science (7-8 hours), Industrial Studies (3 hours), Mathematics (3-4 hours), Natural Science (4 hours & 1 hour lab), Physical Education (2 hours), and the Technology Certificate courses (30-35 hours).

62 Credits

The Outlook

Growth in industry and more complex design problems with new products and manufacturing processes is expected to increase the demand for drafting services. Drafters are frequently called upon to do some work traditionally performed by engineers and architects, increasing their demand. Opportunities are best for graduates with strong technical skills and considerable experience with CAD systems. Demand for drafting specialties can vary throughout the nation, but in the Southwestern Michigan area it is highly concentrated in industries sensitive to cyclical changes in the economy, for instance recreational vehicles and modular housing. According to the U.S. Bureau of Labor Statistics, drafters in Michigan during 2004 earned an average \$43,160, with an hourly wage of \$19.39 to \$20.75.

Drafting & Design Certificate

COURSES

Sample courses for this certificate are described below. For a complete list of course descriptions, see Glen Oaks' online catalog at www.glenoaks.edu

Required Coursework (28 hours)

EDP 101 Introduction to Computers & Software.....	4 Credits
NSM 109 Math for Technicians I.....	3 Credits
NSM 119 Math for Technicians II*.....	3 Credits
VTD 201 Applied Descriptive Geometry.....	3 Credits
VTD 215 Computer Aided Drafting (Autocad).....	3 Credits
VTD 216 Advanced Computer Aided Drafting (Autocad)*.....	3 Credits
VTD 217 3-D Modeling (Inventor)*.....	3 Credits
VTI 151 Manufacturing Processes.....	3 Credits
VTI 163 Statistical Process Control/Total Quality Management.....	3 Credits

Electives (7 hours required)

VTD 224 Machine Drafting*.....	4 Credits
VTD 271 Internship I*.....	3 Credits
VTM 131 Basic Machine Tool.....	5 Credits
VTM 135 Practical Metallurgy.....	3 Credits

Minimum Hours Required....35 Credits

*Course has a prerequisite
Effective: Fall 2005

Preparation

Current High School Students:

Be prepared to enter directly into the first semester of college courses. The college recommends that you complete a Secondary School Business and Industry Career Pathway Sequence provided at many schools. Check with your high school counselor for high school graduation requirements, dual enrollment opportunities, and possible Articulation Agreements. *Courses might include Math, Science, Computer Technology, Design or Computer Graphics, and any high school drafting courses available.*

Adults returning to School:

Don't underestimate your life experience!

A Glen Oaks Community College counselor can help you assess your life experience and suggest how you can best apply those skills to your academic goals.

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EDP 101 INTRODUCTION TO COMPUTERS AND SOFTWARE

4 Credits, 4 Contacts

A survey course on computer concepts and applications associated with the current generation of computer technology. Students will study terminology as it applies to computers, networks, operating systems, and internet usage. This course includes a hands-on component where students will work with current software such as Microsoft (XP) in word processing, spreadsheets, and databases within the Windows Operating system.

Prerequisite: None

NSM 109 MATH FOR TECHNICIANS I

3 Credits, 3 Contacts

This course is designed to give students a review of basic mathematics: whole numbers, fractions, decimal numbers, percentages, measurement and pre-algebra. Practical problem-solving experiences covering a variety of topics in industrial technology will be used.

Prerequisite: None

VTD 215 COMPUTER AIDED DRAFTING - AUTOCAD

3 Credits, 3 Contacts

This is an entry level course for students who have an understanding of basic drafting standards. Autocad software is used throughout the course. Topics include terminology, techniques and applications of computer generated design as it relates to engineering tool design and product design. All drawings are generated in two dimensional design.

Prerequisite: None

VTD 217 3-D MODELING (INVENTOR)

3 Credits, 3 Contacts

This course introduces the concepts and techniques of 3D Modeling using Autodesk Inventor software. As an introductory class, it does not assume prior knowledge of any 3D modeling software. Some CAD background with orthographic projections, sections, and exploded views is recommended. Some of the topics will include constraining and dimensioning sketches, generating 3D parts from sketches, editing 3D parts, placing parts in assemblies and creating drawing views.

Prerequisite: VTD 215 Computer Aided Drafting - Autocad

VTD 224 MACHINE DRAFTING

4 Credits, 4 Contacts

This course is a study of machine components and tolerances of mating parts. Geometric Dimensioning and Tolerancing will be emphasized including symbols and practices from the U.S. Standard ANSI Y 14.5-1995. Proper use and interpretation of GD & T will also be studied using Computer Aided Design technology throughout the course.

Prerequisite: VTD 215 Computer Aided Drafting - Autocad

GOING THREE DIMENSIONAL

The Drafting and Design Certificate prepares you with entry level drafting and CAD skills so you can work in the field after two semesters of study. This certificate qualifies for the first year towards the Associate of Applied Science in Technology Degree.

This certificate blends the best of both worlds, preparing you for blueprints and paper drafting skills AND the latest in 3D drafting software.

Computer-Aided-Design (CAD) using the latest technology is a major part of the Glen Oaks program. This CAD training provides a strong foundation leading to greater opportunities for employment.



Glen Oaks faculty are skilled, knowledgeable, and enthusiastic about the subjects they teach. James Cook (left) is a Professor of Drafting/CAD with nearly 30 years experience at Glen Oaks Community College. Besides teaching Computer Aided Design (CAD) and Computer Aided Manufacturing, Professor Cook instructs Statistical Process Control, Technical Math, Geometric Dimensioning & Tolerancing. He earned his undergraduate degree at Ferris State University in Drafting and his graduate degree at Indiana State University in Industrial Technology. He is a member of the American Society for Quality Control and frequently serves as a consultant and instructor to industry.

You're half way toward an Associate of Applied Science in Technology Degree...

Communications (choose 10 hours)

- COM 111 Business/Technical Communications*.....4 Credits
- COM 121 English Composition*..... 3 Credits
- COM 140 General Communications: Speech **OR**
- COM 150 Public Speaking..... 3 Credits

Computer Science (4 hours required)

- EDP 101 Introduction to Computers & Software..... 4 Credits

Social Science (choose 7-8 hours)

- BAM 251 Organizational Behavior*..... 3 Credits
- SSG 110 American Government & Political Science*..... 4 Credits
- SSH 201 U.S. History I: European Colonization to 1877*..... 4 Credits
- SSH 202 U.S. History II: Reconstruction to the Present*..... 4 Credits
- SSP 101 Psychology..... 4 Credits
- SSP 210 Human Growth & Development*..... 4 Credits
- SSS 120 Principles of Sociology..... 4 Credits
- SSS 220 Marriage and Family*..... 4 Credits

Industrial Studies (choose 3 hours)

- VTI 151 Manufacturing Processes..... 3 Credits

Mathematics (choose 3-4 hours)

Choose from 12 courses ranging from Introductory Algebra or Math for Technicians I to College Trigonometry.

Natural Science (4 hours + 1 hour Lab)

- NSP 151 General Physics I*..... 4 Credits
- NSP 152 Physics I Lab*..... 1 Credit
- OR** NSP 153 General Physics II*..... 4 Credits
- NSP 154 Physics II Lab*..... 1 Credit

Physical Education-Activity (choose 2 hours)..... 2 Credits

Technology Courses (choose a minimum of 30 hours)..... 30 Credits

(Drafting and Design Certificate qualifies)

TOTAL CREDITS REQUIRED..... 62 Credits

* Course has a prerequisite

Effective: Fall 2004

Financial Aid is possible

Glen Oaks Community College's financial aid program has two primary goals: To assist students in financing their post-secondary education and to attract students with a variety of abilities and skills to the college.

Therefore, a number of financial aid programs, including grants, scholarships, employment opportunities, and loans are possible. Students should carefully read information in the college catalog or check out the GOCC Financial Aid Office website: www.glenoaks.edu/financial/index.html

Financial aid to help you pay for college is administered by Glen Oaks, and typically originates from the Federal Government, the State of Michigan, Glen Oaks itself, or some private funding source. The financial aid dollars are made available to students through three basic types of programs: grants/scholarships (which do not have to be repaid), employment (which provides paid work experience on and off campus), and loans (which MUST be repaid with interest).

Career Resources

Glen Oaks Career Counseling Services
Students Services Department
(269) 467-9945 or (888) 994-7818
www.glenoaks.edu

Michigan's Web-based Education
Development Plan
www.mi-edp.org

Bureau of Labor Statistics Occupational Outlook
www.bls.gov/oco

Michigan Occupational Information System
MOIS
www.mois.org

American Design Drafting Association
www.adda.org

Affirmative Action Statement:

The Board of Trustees of Glen Oaks Community College affirms that through its admission, recruitment, employment and educational policies, practices, and programs, the College seeks to provide equal opportunity and affirmative action for everyone. The College shall not discriminate against anyone because of race, sex, color, religion, age, creed, national origin, height, weight, marital status or disability.

This publication is intended to provide a general overview of the program. For current specific requirements, consult with a Glen Oaks Community College academic counselor.

Fred Shank, Jr., is a 1997 graduate of Glen Oaks Community College. The Sturgis resident studied computer aided design at Glen Oaks and completed an Associate of Applied Science in Technology Degree. Fred, who is a designer for a company manufacturing truck and RV parts said, "The degree has definitely helped my career." Fred was a working family man and explained, "I needed classes that fit my schedule. The nearby location and the affordable cost were also major factors. I found the instructors and advisors were very helpful. When I started classes I barely knew how to turn on the computer, but I spent a lot of extra time in the CAD lab and received a lot of excellent help." Fred worked at his employer while at GOCC and found the computer design software was the same being used by the company. Glen Oaks Community College continues to update so students are using the latest AutoCad programs.



STUDENT SUPPORT

- Personalized educational and career planning
- Financial aid and scholarships
- Flexible Schedules: day, evening, distance learning online/video classes
- Tutorial programs and free tutoring
- Modern labs and computer information classrooms
- Full-service library/computer center
- Small class size & caring, knowledgeable instructors.

CALL NOW

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